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families that he has investigated, he finds that the killing of a short zone of a stem or of a petiole results very soon in cutting down the water transport to the parts above, and leads to wilting—the longer the killed zone, the quicker the wilting. He claims that there is no blocking or interfering with the water path, but that the reduced water movement is due to the lack of living cells in the zone killed. This indicates that the continuous rise of sap in small plants, as has been shown to be the case in tall trees, is dependent upon the action of living cells.—WILLIAM CROCKER.

Seedling structure of Gnetales.—HILL and DEFRAINE¹⁸ conclude their account of the seedling structure of gymnosperms by a presentation of Gnetales. A short cotyledonary tube is formed in every case; the cotyledonary traces are two in *Ephedra*, four (in two pairs) in *Welwitschia*, and four or five in *Gnetum*; and all the traces are collateral endarch. The so-called foot in *Welwitschia* and *Gnetum* is described as a parenchymatous growth at the base of the hypocotyl, in the former genus being spadelike and with no vascular supply, and in the latter genus being rodlike and with numerous well-differentiated bundles. The transition to root structure occurs in the lower region of the hypocotyl, in *Welwitschia* and *Gnetum*, immediately below the foot; and in all cases the primary root is diarch.—J. M. C.

"Apogamy" in Pteris.—Miss STEPHENS and Miss SYKES have examined prothallia of *Pteris droogmantiana* furnished by BOODLE. In a brief note¹⁹ they announce that binucleate cells are common; that there has been no nuclear migration, as no surrounding cell is without its nucleus; that the two nuclei arise from the division of the nucleus of an ordinary cell without wall-formation; that the two nuclei thus produced remain separate for some time and then fuse. Just what this performance means is not evident, but perhaps the fuller paper will tell. The note is called one on "apogamy," and presumably there is reason for knowing that these are apogamous prothallia.—J. M. C.

Morphology of Psilotum.—STILES²⁰ has investigated the anatomical structure of the serial shoots of *Psilotum flaccidum*, one of the two species usually regarded as constituting the genus. Aside from certain anatomical details that distinguish this species from the other (*P. triquetrum*), the main results are that secondary thickening is found in this species also; that mesarch structure occurs in the lower part of the aerial stems; that the sporangiophore trace terminates in the central tissue between the three "confluent" sporangia, as had been shown for *Tmesipteris*; and that no evidence was obtained to decide whether the sporangiophore is "foliar" or is "an organ *sui generis*."—J. M. C.

¹⁸ HILL, T. G., and DEFRAINE, E., On the seedling structure of gymnosperms. IV. Gnetales. *Annals of Botany* **24**:319-333. *pls. 22, 23.* 1910.

¹⁹ STEPHENS, E. L., and SYKES, M. G., Preliminary note on apogamy in *Pteris droogmantiana*. *Annals of Botany* **24**:487. 1910.

²⁰ STILES, W., The structure of the aerial shoots of *Psilotum flaccidum* Wall. *Annals of Botany* **24**:373-397. *pl. 25.* 1910.